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INTERNATIONAL ISSUE

telephony

APRIL 22, 1985

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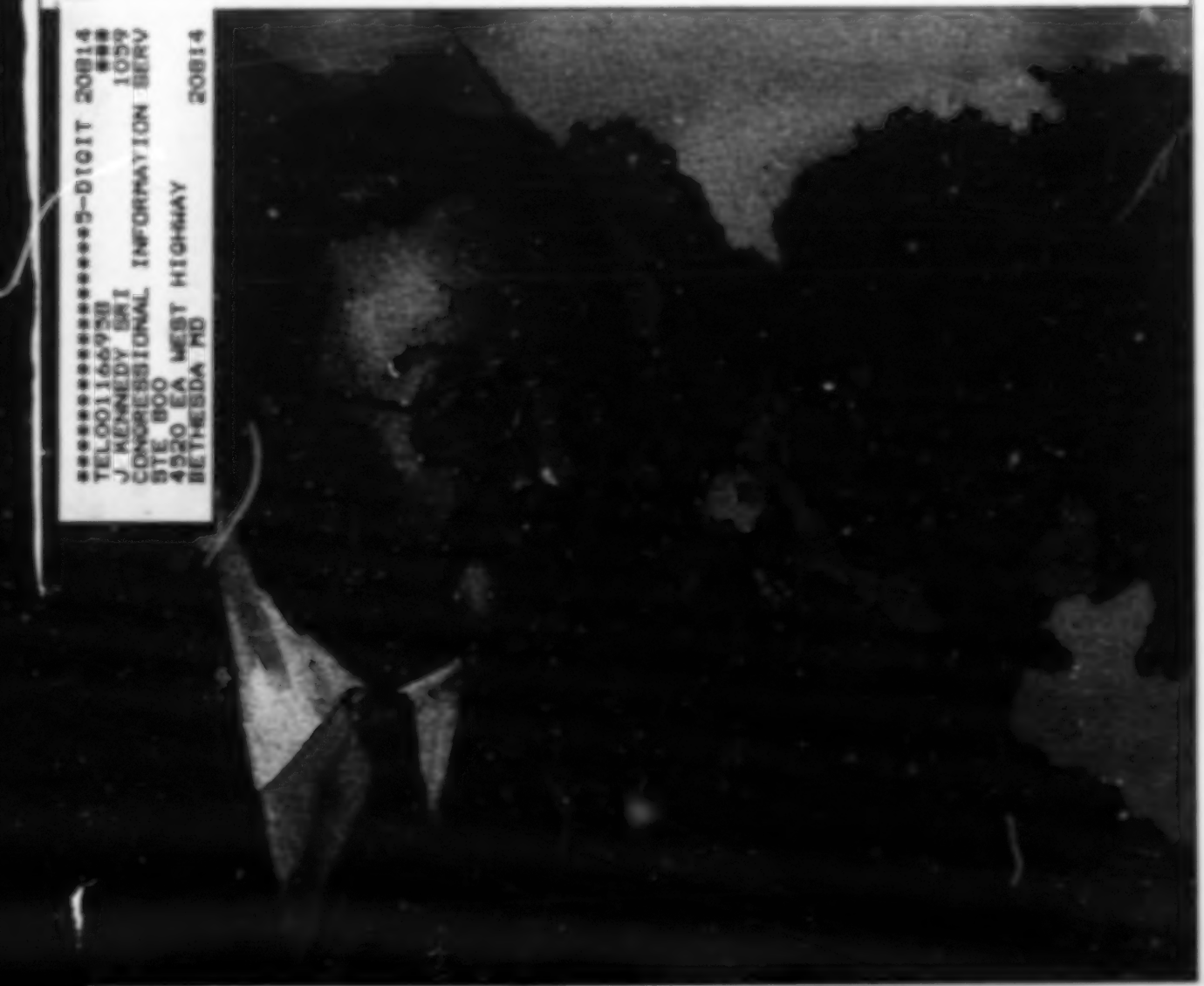

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LETTERS

Ready to fight

It has been said again and again, but it also must be repeated again and again: Rural telephony needs the REA Program as well as the Standards and Engineering Div. of REA.

Rural telephone managers and owners started on a shoestring with revenues close to welfare levels. Only because of their dedication, years of hard work and the REA program do the rural communities of America have the very finest telephone systems.

Now, some people are proposing to eliminate the program and the Standards & Engineering Div. Are they mad? Why would anyone want to tear down a system that works? Adjust maybe—but not destroy.

The Western Rural Telephone Assn. (WRTA), an association dedicated to serve the REA borrowers within the Western (Alaska, California, Colorado, Guam, Idaho, Kansas, Montanta, Nebraska, Nevada, Oregon, Utah, Washington, Wyoming) and the Southwest (Arkansas, Arizona, Louisiana, Missouri, New Mexico, Oklahoma, Texas) REA areas, will fight to the end to preserve and support the program that helped to make them strong and independent. REA is necessary!

Dolores L. Donnelly
Executive Vice President-Director
WRTA
Santa Rosa, Calif.

New figures

I have just received the December 24 issue of TELEPHONY, and am particularly interested in the article titled, "Low density telephony," (p. 38) and the coverage of China Comm 84 (p. 56).

My main objective in writing is to correct the section of the China Comm article that deals with Beijing telephones. An additional 60,000 telephones are scheduled for installation in 1985, a 50% increase over the number in service in 1984 which was 120,000. These figures have been confirmed to me by Beijing Telecoms staff.

Doug Scholey
Airstocks
Kowloon, Hong Kong

Correction

Table 2 in the article titled, "1985 world telecom spending—a struggle to stay even," in the Feb. 25 issue of TELEPHONY (p. 38) contained an error. The number of equipped lines for Spain should have read 9526 (million) not 1256 (million).

This also changes the total for Zones 3 & 4 to 143,568.3. However, the change represents only 1% of the worldwide total of phones.

"How many long distance calls are you making a month, Edith?!"

CALL CAROL FOR QUALITY & LOWER PRICES
Carol has years of experience making dynamic microphones. Now Carol is putting that experience to work for you to make telephone receiver-transmitters and handsets with quality up to international standards. The next time you call for telephones, why not call for Carol?

Check No. 86 on Reader Service Card

Big enough to serve many but too small to serve all

As sprawling as India's population and size are, so is its telecommunications system. However, while the system can serve many people, it still is too small to serve everyone

T.H. CHOWDARY

LIKE INDIA'S population and size, its telecommunications systems services are also sprawling and are often discussed.

Although India has the 10th largest industrial output and national economy in the world, its telecommunications are inadequate with only 3.6 million telephones or 0.48 telephones per 100 persons in contrast to the world average of over 12 telephones per 100 people. With more than 24,000 kilometers (km) of microwave radio routes, 18,000 km of coaxial cable and about 200,000 km of open wire carrier routes and more than 80,000 long distance telephone circuits, the telecommunications network facilitates about 20 million intracity and 5 million intercity calls per day, besides providing telex facilities in more than 176 towns and cities for about 23,000 subscribers.

The Indian telecommunications system is large enough to serve many people bu. too small to serve everyone. Approximately 800,000 applicants wait for a telephone, in some cases, for as long as 7 years.

The national telecommunications administration (PTT) of India is the second largest government undertaking with a capital base of Rs. 35 billion ($2.765 billion) and an annual income of Rs.12 billion. Its 250,000 workers, or 11 per 100 telephones, are both a strength and weakness. They are a weakness because of manual operations and a strength because of the potential for high turnout and significant achievement. With 28 earth stations and a domestic communication satellite and with 28 automatic exchanges, four of which are stored program controlled electronic exchanges, 250 towns and cities, and 65% of the main lines, are able to dial throughout the entire country.

To provide rudimentary telephone services in India's vast hinterland, a policy of providing public telephones to every community with a population of at least 2500 in underdeveloped areas and 5000 in other areas is practiced. So far, about 25,000 public telephones have been placed in the villages. They provide good communication up to the district level, which is the largest part of the villagers' needs.

There also is an extensive telegraph network with about 40,000 villages, towns and cities accepting and delivering more than 80,000 telegrams per day. In the larger cities, store and forward microprocessor controlled message switches are being installed in increasing numbers to transit telegraph messages.

There is, of course, a relationship between per capita income and the number of telephones per capita. In developing countries, there are very rich people intensely engaged in economic activities and others who are just not drawn into the vortex of economic activity. It is estimated that in India at least 5% of the people are as rich today as the average person in Greece or Spain; for example, a total of 36 million people fall into this category. However, there are 3.5 million telephones for this segment of India's population; there would be at least 12 million phones for that segment if India's average was the same as Greece's or Spain's.

The urban population in India is about 25% of the total population, or about 183 million people. Their per capita income is much more than the national average. About 225 cities in India, each with a population of more than 100,000 people, have a total population of 107 million people and only about 2.9 million telephones or a 2.7% availability. This poor availability, even in the most intense centers of economic activity, is leading to poor telecommunications service. Evidence of the pressure on the telephone system is provided by the fact

T.H. Chowdary is Deputy Director General (MS), P&T Directorate, New Delhi, India.

Table 1
Investment in telecoms

Plan period	Investment in Rs. million	Percentage of internal resources
1951-56	470	21
1956-61	660	32
1961-66	1640	39
1969-74	4150	72
1974-79	11,890	73
1980-85	26,650	67
	45,460	

that in countries with better availability, 4 calls are made per main line per day; the figure in India is between 8 and 12. Those who have telephones use them intensely because they do not have as many as they want. Also, a recent business decision, regarding additional telephones for a person on the same premises, will require a deposit of Rs. 8000 and an annual rental of Rs. 1050. Those who do not have telephones use their neighbors' telephones.

The result is a very poor call completion rate. The number wanted is often found to be busy making or receiving calls; the caller also repeatedly and in quick succession is making call attempts, leading to overloading of the system and its rapid deterioration. In fact, only 33% to 40% of all call attempts result in conversations in the metropolitan cities.

In an attempt to extend national subscriber trunk dialing, realize the economies of alternate routing and provide additional facilities, old Strowger step-by-step exchanges are being phased out and crossbar exchanges are being introduced both at the local and trunk levels. Beginning with 1984, stored program controlled (SPC) analog electronic trunk exchanges for voice and digital exchanges for telex have also been introduced in the network. Even for local voice calls, about 50,000 lines of SPC analog electronic exchanges have been commissioned, and 170,000 lines on order.

With all this effort, it was expected that call completion rates would go up. However, because of the very large number of inefficient electromechanical exchanges still in the network, the improvement is not yet significant. For example, in Bombay, which has India's largest number of telephones—about 600,000—the electronic exchange capacity is 4.5%; crossbar exchanges are 62%; and Strowger step-by-step exchanges are 33% of system capacity. The result is marginal now. However, from one local electronic exchange through an electronic toll automatic exchange to another city with a local electronic exchange, the completion rate is 50% to 60%. In the telex network, there has been considerable improvement because more than 170 telex exchanges in the country are connected to one of four digital transit/local telex exchanges, so calls involving three links—that is, from one terminal exchange in one part of the country to another in another part of the country—have a completion rate of 70% to 80%, which is a remarkable figure.

Quality of service

The telephone is extremely valuable because long distance communication reduces transportation related delays. Indian managers and executives know what a great management tool telecommunications has been in the developed countries.

Sadly, the service is not satisfactory. While in many developed countries there may be one trouble report from a telephone in 2 to 5 years, in India normal trouble reports range from 4 to 12 a year. Because of the congested local and long distance networks, operator assistance is sought more often than anywhere in the world. For example, in the metropolitan systems, there are 4 to 10 calls to operator assistance per 100 telephone calls per day to get a local number.

Similarly, despite the availability of subscriber trunk dialing, tens of thousands of trunk calls are placed with operators. In Bombay and Delhi there are, on the average, more than 20,000 operator calls per day.

Huge numbers of operators are needed; in fact, they are the single largest class of telephone employes, constituting about 25% of all employes. The effort to improve the long distance subscriber dialing network and ease congestion is perpetual.

One reason for the high trouble report rate is the use of poor outside plant; cables, overhead drops and the wiring at the subscriber's premises. Because of limited availability of equipment and cables, almost every 2 years the same telephone exchanges are expanded; and, simultaneously, the underground cable network is expanded by digging up the streets and placing additional complement of cables, a process which carries with it the inherent hazard of damaging existing cables. Cable sheath punctures are revealed not in the good weather when they occurred but with the onset of the monsoon season, when water gets through them. Tens of thousands of telephones go dead. The entire network is thrown into disarray for weeks at a time. Pressurization of cables that are already directly buried has been used 13 years but has not made a significant difference except in one city for want of reliable compressor driers, leak detectors and pressure monitoring equipment.

Construction of underground cable ducts to avoid direct burial has been an accepted method for the past 14 years. But since it involves large capital expenditures and obtaining right-of-way authorizations from local authorities, progress has been slow. While in cities with many telephones, like Bombay, overhead wires and drops are disappearing, in most of the network, there are commonly four to five spans of overhead drop wires, especially in suburban and rural areas. There is endless trouble at distribution points, where the cable pairs are jumpered to overhead drops and overhead drops are terminated in the house.

The telephone instruments themselves are incessant source of trouble. About 85% of all the trouble in telephone services is found in the area from the distribution point to the subscriber's installation. Jelly-filled

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'Because of the congested . . . networks, operator assistance is sought more often than anywhere in the world.'

cables now are being used in distribution cable and larger jelly-filled cables may be used in secondary areas.

Costs

The Indian PTT has completed six 5-year plans. During those 30 years, the number of telephones increased more than 40 times. A total investment of Rs. 44.5 billion had been made. The investment per telephone added has been going up from Rs. 5500 in the first 5-year plan to Rs. 20,000 in the sixth plan. In the seventh plan, because of modernization and the emphasis on building an adequate long distance network, the figure is expected to go over Rs. 30,000 per main line. To add more than 4 million additional main lines, the investment in the seventh plan is estimated at Rs. 125 billion and it could increase because of delays and inflation. One feature of financing the plans has been increasing emphasis on internal resources, particularly from telephone revenues. The amount of internal financing has increased from 21% in the first plan to more than 70% (Table I).

The demand for main lines by the end of the seventh 5-year plan is estimated at more than 7.63 million. However, if telephones were provided within a year of application, the demand would be about 9 million and the demand for telex lines would be 90,000. With an increase in the number of phones, the opportunities for manufacturing and installing equipment also would increase.

Telegraph services would continue to be used in areas with few telephones. Large scale introduction of data services also is envisaged. Planned requirements are 5.9 million and 256,000 lines of local and long distance switching equipment, respectively.

Establishing manufacturing operations on this scale would be a challenge for any PTT in the world. It will be much more of a challenge for the Indian PTT which functions as a department of the government. A large amount of foreign cooperation to promote indigenous manufacturing would be involved. The indigenous electronic industry also would be profoundly affected.

While in many countries, the per main line revenue to the telephone company per year constitutes less than 5% of the per capita income of the country, in India it is 180% of per capita income. During 1983, several studies were made and discussions held to highlight the inadequacy of facilities and the penalty that the national economy is paying. The two most important views that emerged were that indigenous manufacturing capacity should be increased and new methods of funding should be found.

A decision has been made to set up two electronic switching factories; each will produce 500,000 digital exchanges lines per year. Construction of one factory in Mankapur in Uttar Pradesh is underway.

Dependence upon budgetary support and internal finance could restrict growth. Remedial steps suggested are similar to the method used successfully by the French PTT. The PTT would be allowed to raise investment money through bonds, leasing companies and the remarkable instrument of a National Bank for Telecom Development. If, by this method, enough finance is found for a 5- or 10-year period, the base of subscribers would considerably expand. From a large subscriber base it would not be difficult to realize sufficient internal resources without unduly depressing demand or burdening existing subscribers by including the capital cost of future works in the current price of telephone service.

Another good idea is to encourage a multiplicity of producers to make a variety of telecommunication equipment. Fortunately, the electronics industry is burgeoning in India and, in order to promote its accelerated growth, almost every state has set up an electronics corporation. In addition, there are hundreds of private producers. A national effort to develop quality telecommunications equipment is underway. The government's industrial policy resolution of the 1950s, which places responsibility for manufacturing telecommunication equipment in the government sector, has been liberally interpreted to permit private and joint private-public ventures to participate.

Because of the earlier restriction of knowledge and skills to a few government departments, private industry appears handicapped in envisaging the variety and quality of communication equipment that it could produce. There is a wide ranging search for foreign technical collaboration. At the same time, in order to restrict a bewildering variety of equipment types, with the related problems of spares, compatibility and continuing development, it is also believed that these technical collaboration agreements should be centrally directed and should ensure not more than two to three collaborators per product. The tremendous expansion envisaged in the seventh 5-year plan and afterward would open an unprecedented market in India for all equipment manufacturers. Manufacturers from around the world have not been slow in recognizing this point. There have been delegations of manufacturers from England, the United States, France and Canada to study the market and explore the possibility of technical collaboration with Indian manufacturers.

In many industrialized countries, growth in the number of telephones is slowing. In fact, in the United States, plain old telephone service is giving way to information age, enhanced services. This is not the case in the world's two most popular countries, China and India. Both countries can skip the evolutinary phases the more industrialized countries passed through.

With appropriate vision and good management, India can fully participate in the developing information age. □

'In many industrialized countries, growth. . .of telephones is slowing. In fact, in the United States, plain old telephone service is giving way to information age, enhanced services. This is not the case in. . . China and India. Both countries can skip the evolutionary phases the more industrialized countries passed through.'

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Regulation and competition —Canadian style

MARC WINFIELD
and PERCY von LIPINSKI

AN IMPORTANT milestone in Canada's national development was reached in 1931 when the Statute of Westminster officially granted Canada sovereignty and independence from Great Britain. In that same year, an unincorporated association of major Canadian telephone companies was formed to construct a national long distance telephone network, the TransCanada Telephone System (TCTS). The TCTS would be Canada's interprovincial carrier and would make Canada as independent of American Telephone & Telegraph Co. (AT&T) as it was of Great Britain. TransCanada telephone calls would no longer have to be partly routed through the United States.

Today, the TCTS is called Telecom Canada. Its members are the nine major provincial telcos and Telesat, the country's satellite carrier. CNCP Telecommunications, a partnership of the telecommunications divisions of both private and government owned railway systems, is the only other interprovincial carrier. It provides telegraphic services in addition to private voice and data networks in certain provinces. Together, the revenues of CNCP and Telecom Canada accounted for more than 90% of the more than $8 billion Canadian telecommunications carrier market in 1984.

Telesat provides Telecom Canada with the medium for some of the country's domestic interprovincial telephone traffic. In addition, it carries radio, television and data across Canada and to remote settlements. Owned by the federal government and the major carriers, Telesat was formed in 1969 and became a Telecom member in 1977. In 1982, with permission from International Telecommunications Satellite Organization (INTELSAT), Telesat arranged to handle certain transborder traffic in cooperation with U.S. satellite carriers. Until recently, Telesat was the only organization licensed to own and operate satellites in Canada. A recent ruling of Canada's federal regulators now permits private users to own and operate earth stations.

Overseas telephone service from Canada was inaugurated in 1927 with a call indirectly connecting Ottawa and London. In 1933, the first direct channel overseas entered service. The Canadian Overseas Telecommunications Corp., now known as Teleglobe Canada, was formed in 1949 to administer and operate Canada's intercontinental telephone traffic. Teleglobe's most recent achievement was the 1983 completion of ANZCAN, the latest in a generation of high capacity undersea coaxial cables for long distance transmission. As an international carrier, Teleglobe is associated with INTELSAT rather than Telecom Canada. Like Telecom Canada, Teleglobe's monopoly on Canada's international carriage is soon to be challenged by the new interexchange carriers. The federal government now has Teleglobe up for sale.

A mixed grouping

The Telecom Canada member companies are a mixed grouping. Bell Canada is the largest, with almost 60% of the telephones in Canada. It is a wholly owned subsidiary of Bell Canada Enterprises, which holds significant equity in the principal telcos of each of the Maritime provinces: New Brunswick, Nova Scotia, Newfoundland and Prince Edward Island. In the Prairie provinces, each of the principal telephone systems is owned and controlled by its respective provincial government. The second largest telco in Canada, the British Columbia Telephone Co. (BC Tel), is owned and controlled by GTE Corp., Stamford, Conn. In addition to Telecom's members, there are more than 150 other smaller, Independent telephone systems in Canada, many of them municipally owned, operated and regulated.

In their own operating territories, the telcos have a monopoly on public switched telephone voice services. Canada's major telcos, collectively making up Telecom Canada, are the country's monopoly carrier of interprovincial public telephone traffic. Public message services are a nationwide monopoly service of CNCP. The remaining interprovincial services for video, data and private voice transmission are a market shared to varying degrees by both Telecom Canada and CNCP.

As monopoly suppliers, Canada's

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Marc Winfield is Vice President of Operations and *Percy von Lipinski* is President, Com-Link Communications Ltd., Vancouver, British Columbia.

telcos have been able to offer their noncompensatory universal local service by cross-subsidization from their more profitable services: private lines and long distance. For Canada's seven publicly traded telcos, operating profits (before taxes and debt charges) averaged more than 25% of their revenues in 1984 (not including those of subsidiary operations). The overall average of those revenues come from long distance charges. As in the United States, long distance revenues have enjoyed a growth rate exceeding that of inflation.

Canada enjoys a significant place in the early history of telecommunications and telephony. Alexander Graham Bell, a Canadian, invented the telephone in Ontario. The world's first long distance call was also made in that province in 1874.

The first trans-Atlantic radio signal was sent by Marconi from Newfoundland in 1901. In recent years, Canada finds recognition as a world leader in the manufacture of telecommunications equipment. Considering this and its position as a wealthy, developed nation, it stands to reason that Canada's nationwide telecommunications network should be advanced and its administration progressive (see Figure 1).

Table 1: Major Canadian Telcos Share of Carriage Market (%) and Regulatory Agencies

Teleglobe Canada	2.0	federal government
Bell Canada	51.9	CRTC
BC Telephone Co.	12.0	CRTC
CNCP Telecommunications	3.6	CRTC
Telesat Canada	0.7	CRTC
NorthwesTel	0.6	CRTC
Terra Nova Telecommunications	0.4	CRTC
Alberta Government Telephones	9.8	Alberta Public Utilities Board
Saskatchewan Telecommunications	2.5	Saskatchewan Public Utilities Review
Manitoba Telephone System	2.9	Manitoba Public Utilities Board
New Brunswick Telephone Co.	2.3	New Brunswick Public Utilities Board
Maritime Tel and Tel Co.	2.8	Nova Scotia Public Utilities Board
Island Telephone Co. Ltd.	0.3	Prince Edward Island Public Utilities Commission
Newfoundland Telephone Co. Ltd.	1.3	Newfoundland Public Utilities Board
Edmonton Telephones	1.8	City of Edmonton
Northern Telephone Ltd.	0.3	Ontario Telephone Service Commission
Québec Téléphone	1.7	Régie des services publics du Québec
Télébec Ltée	1.0	Régie des services publics du Québec
Thunder Bay Telephone System	0.2	Ontario Telephone Service Commission

Long distance competition

Ironically, the development of the Canadian long distance telephone network has, in a sense, gone full circle. Again, transCanada telephone and data traffic is being networked across the border for part of its travel. Companies in the United States are again taking a portion of the revenue from Canadian long distance calls to points within Canada and a larger portion than they normally would be due for calls made into the United States.

Legislators and Canadians involved in the telephone industry might only have imagined such an occurrence under the duress of wartime invasion or other disaster when the long-established lines of communication within Canada had been severed. This seems unusual when telephonic communications within Canada have suffered no physical interruption, relations between Canada and its southern neighbor are at their best in 15 years and, in general, the trade balance with the United States weighs heavily in Canada's favor.

In fact, there are two conflicts in process. They are economic in nature but neither one is across the border. One has existed for the past 8 years between the ubiquitous U.S. other common carrier (OCC) and resale operations striving for a competitive edge to ensure their survival in the stabilizing U.S. long distance market. The other is being waged in Canada's legislative forums over the extent to which telecommunications should be deregulated or reregulated. Concerned parties, aside from the Canadian public who will be affected by any change in regulation, include two groups. On one hand, there are several corporate entities with an interest in cutting long distance expenses or in entering the toll market for profit. On the other, there are the consumer groups and the telcos interested in maintaining the long-standing tradition of universal service.

In the United States, the window of opportunity for new long distance companies has all but closed. Competition is fierce in a marketplace that no longer offers niches for newcomers and is rapidly squeezing out many late arrivals. Existing companies vie for what market segments remain and strive to include as much of the international traffic as is possible and permitted by the regulators concerned.

National telephone systems are independent of one another to a large degree. Therefore, the only factor that can influence the relative costs of the same service in both Canada and the United States is pressure from representatives of business who cite the "better" system as an example to promote or discourage change. For the majority of individuals who have to pay the rates, the objectivity in determining the needs and criteria for change is lost.

For the telephone industry, regulation was a byproduct of its inception. Regulation has existed for more than 100 years, although it is only since the Carterfone decision 18 years ago that regulation has become a widely-touted public issue. In Canada, aside from media acknowledgements of developments south of the border, the issue of deregulation in the public spotlight is a far more recent phenomenon. It may in fact have been brought about by another hotly debated Canadian communications issue: the reception of U.S. television signals that stray across the border and their effect on Canadian social, cultural and even economic sovereignty from the United States.

A regulatory mosaic

Following the invention of the telephone in Canada and the subsequent rapid growth of telcos throughout Canada, regulation was enacted as in the United States to provide universal service. Nevertheless, a definitive

and consistent policy for telecommunications regulation was never established and the result was a patchwork of regulatory agencies. Canada has been referred to as a regulatory mosaic. The manner of regulation for Canada's telcos was determined to a great degree by historical accident.

'In their own operating territories, the telcos have a monopoly on public switched telephone services. Canada's major telcos, collectively making up Telecom Canada, are the country's monopoly carrier of interprovincial public telephone traffic.'

For the most part, regulatory bodies operate at the level of government that corresponds to the serving area of the telcos they regulate (Table I). Many exceptions exist. BC Tel in its early years chose to be federally regulated. Because of its nationwide telegraph network, CNCP's several telco subsidiaries which operate within the bounds of single provinces or territories are also federally regulated. Bell Canada is an anomaly in the patter as its serving area comprises two provinces instead of one. Because of the interprovincial scope of its coverage, it is federally regulated.

The federal regulator in each aforementioned case is the Canadian Radio-television and Telecommunications Commission (CRTC). The CRTC oversees all rate increases as well as setting broadcast and telecommunications policy. The CRTC is responsible to the Dept. of Communications (DOC), Canada's nearest equivalent to the U.S. Federal Communications Commission (FCC).

For almost 90 years, government policy with regard to telecommunications had been to do little more than set price guidelines and pay homage to the virtue of providing universal service.

It was not until 1969 that the DOC was formed. Until then, the regulation of Canadian telecommunications was determined by largely insignificant, loosely-worded sections of the Federal Railway Act. If organized earlier, the DOC might have paved the road to more consistent regulation. It might have bypassed the most pressing need for consistency in regulation, that being to improve if not, enforce, communication between the provinces regarding their role in the overall network of Canadian telecommunications. Currently, the DOC's role in the telephone industry is to set the standards and approve user-owned terminal equipment manufactured in Canada.

Certainly, for almost 15 years, the nationalization policy of the Liberal government had a strong retarding effect on foreign investment in Canada. Fortunately, Canada benefits from its reputation as a leader in telecommunications interconnect technology. Canadian switching, transmission and terminal equipment finds an eager market worldwide.

Ironically, Canadian telecommunications manufacturers, except those owned by the telcos' parent companies, have had trouble selling their goods in Canada. Because of broader deregulation, they have found a more open market in the United States. Even after the institution of interconnect reregulation in those areas of Canada overseen by the CRTC, competitive manufacturers have often struggled unsuccessfully to break the equipment monopoly. Amid rumors of drastic underbidding and saddled with unusually high operating losses, newly-created, competitive telco subsidiaries have continued to dominate their market and, in that sense, maintain their monopoly. In Canada's Prairie and Maritime provinces, the telcos still retain a monopoly that tends to be upheld by the respective provincial regulators.

Canada's unique demographic situation is worthy of mention here, especially in terms of its economic repercussions. The population of Canada is only one tenth that of the United States but for all Canada's vastness, 90% of its population is restricted to a 100-mile wide corridor along the U.S. border. Therefore, the Canadian government's concern about the effects of U.S. television and radio programing are somewhat warranted. Similarly, the relatively rapid improvements and developments in the U.S. telephone and data network make it increasingly attractive to Canadian business, which is as eager as its counterpart south of the border to reap the benefits of better technology, services and prices as soon as they become available.

It may be a bitter irony for Canada that regulation has restricted emerging businesses or corporate interests from starting several years ago to replace the old, microwave transCanada relay with a modern, even fiber optic, system that would not only meet Canadian needs but could have surplus capacity available for sale to U.S. customers. The latter prospect would have been, and is perhaps still, attractive because of the U.S. dollar's strength in foreign markets.

Seen from the other side of the 49th parallel, the Canadian telecommunications service industries are a potentially attractive market for U.S. manufacturers. However, foreign trade tariffs are too restrictive so Canadian telcos tend to buy Canadian. On one hand, these policies and their consequences benefit Canada's economy, but seen from another viewpoint, they serve to reinforce the adversity of the climate for competition in even the most widely deregulated sector of the telephone industry. Partial parallels might be drawn between this situation and the Japanese government's controversial decision to deregulate the national telecommunications system or the U.S. government's continuing dilemma over the importation of Japanese automobiles.

'The manner of regulation for Canada's telcos was determined to a great degree by historical accident.'

Competition on the service side of

the telephone industry is a recent occurrence in Canada. For the most part, it is only an issue, not a reality. With only one public switched network, that of Telecom Canada, there are, in a sense, neither OCCs nor true resellers of long distance telephone service operating in the country at present. This last point requires some explanation.

Two companies in British Columbia, Cam-Net Inc. and Longnet Communications, have been reselling the services of U.S. carriers to Vancouver long distance users. For access to these services, a long distance call across the U.S. border is required. Customers receive long distance bills from both BC Tel and the Vancouver reseller which acts as billing agent for the U.S. carrier. Nevertheless, with the BC Tel and U.S. OCC charges combined, users were able to realize savings usually on the order of 5% to 20%, that is, until April 1985.

When Longnet and Cam-Net began operating, BC Tel had appealed to the CRTC for permission to block their calls. This appeal was denied and for a year, the two companies increased their small customer base. However, a subsequent application by BC Tel was granted approval by the CRTC. BC Tel was permitted to lower its rates for long-haul calls to the United States and raise them for the short-haul, that is, Cam-Net and Longnet access calls into the state of Washington. The mainstay of the Vancouver resellers' operations had come to a practical end.

Acting more swiftly than BC Tel against the promise of competition, Bell Canada offered business customers its own discount long distance service for calls going into the United States. Teleplus 1022 is a special dialing plan that permits authorized subscribers to route U.S.-bound calls through MCI's network rather than AT&T's. For the high volume business subscriber, the results are savings comparable to those of Cam-Net and Longnet.

In 1979, the CRTC had permitted CNCP to interconnect its facilities with Bell Canada for the provision of private long distance lines. This form of telco bypass was cost effective for only the largest of corporations. By CRTC regulation, British Columbia opened to private networks in 1981, permitting CNCP access to Canada's three largest cities. However, those areas not under CRTC regulation, that is, the Prairie and Maritime provinces and international telecommunications, have remained immune to CNCP's incursion. In the already limited market for private-line voice networks, the situation for CNCP is far from competitive even though it now has what might be termed the monopoly on competition with Telecom Canada.

Recently, CNCP and Com-Link Communications Ltd. have announced plans to enter the long distance market in competition with Telecom Canada. All three have announced their intention to implement transCanada fiber networks. CNCP also wants to expand its private voice network into new areas of Canada. In 1984, the CRTC began hearings, known as the Interexchange (IX) Proceedings, on the issue of competition in the Canadian long distance marketplace. CNCP and Com-Link submitted their applications as interested parties wanting to begin operations as Canada's first OCCs. To date, no other companies have so formally entered their proposals but a number of parties have announced publicly their interest in establishing

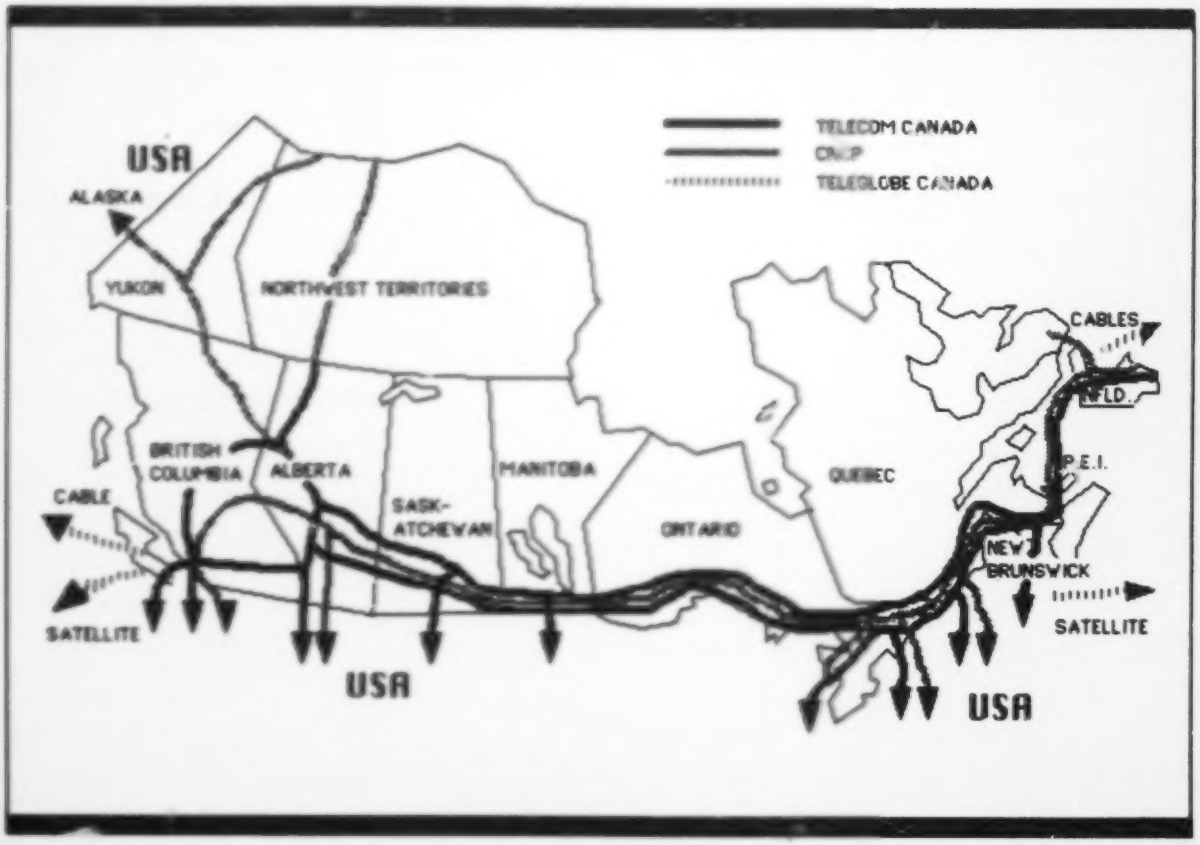

FIG 1 *Major Canadian telecommunications arteries.*

competitive long distance telephone networks in Canada.

Local service worries

The telephone industry has recently entered the Information Age. Public switched networks support voice in digital or analog format and data communications, the latter in increasingly greater proportion. Through the advent of stored program controlled switching, the process of billing has become less expensive and simple enough to implement local measured service (LMS) in conjunction with any or all other forms and plans of subscriber billing.

In conjunction with the rate rebalancing that has arisen in the United States as a direct result of competition in the long distance market, there have been concomitant plans to introduce LMS. Where zone usage measurement is in effect, of course, rates have gone up.

In Canada, the threat of LMS has received understandably negative publicity. Spokespersons for consumer associations and unions have suggested worst-case scenarios following the proposed proliferation of competition in the telephone industry. For instance, in metro areas such as Vancouver where the free calling area is large, the inevitable introduction of LMS by the serving telco will have considerable social and economic effects. Part of the negative public reaction is fear of the unknown. The remainder is the result of the inculcations by proponents of a monopolistic telephone industry. Local monthly service rates may increase. Telcos may obtain approval to charge more for use of their telephone lines for data communication (for which Bell Canada has already applied to the CRTC). Long distance access charges may soon be levied on some or all Canadian subscribers. But reasonable telephone rates do not have to come to an end.

Local rates have increased almost everywhere in the United States over the past 8 years, typically 10% to 50%, but not to the extent once forecast by monopoly proponents. Where even these modest rate increases have threatened to financially burden low-income ratepayers, special rate categories have been created to preserve the universal service maxim. Many U.S. telcos now offer lifeline services to bona fide low-income subscribers and LMS-type billing for low-volume callers. In the final analysis, it is doubtful that the effects of rate rebalancing and its many permutations will sink small businesses or force low-income households to forfeit their telephones. The U.S. example, so frequently and perhaps even deliberately misinterpreted in Canada, has shown this to be so. Also, Canada's deregulatory situation has and will continue to benefit from the mistakes and lessons learned in the United States.

'Telesat provides Telecom Canada with the medium for some of the country's domestic interprovincial telephone traffic. In addition, it carries radio, television and data across Canada and to remote settlements.'

Within an industry, the rapid advance of technology and changing socioeconomic conditions have little effect on one another but without, these two influences alter living standards and government policy. The United States is responsible for much of the world's change and development. Logically, being its largest trading partner, neighbor and ally, Canada feels this influence more than any other nation. Canada is part of the North American numbering plan and so it should with the high volume of traffic that goes between it and the U.S., approximately 150 million calls annually.

'It may be a bitter irony for Canada that regulation has restricted emerging businesses or corporate interests from starting. . .years ago to replace the old, microwave transCanada relay with a modern, even fiber optic, system that would. . .meet Canadian needs. . . .'

The U.S. telecommunications industry has undergone what some have termed a revolution in recent years. Although Canada cannot and should not be exactly like the United States, its communications policies and regulation will have to adjust to the new climate. Change is inevitable.

Politics may be an unavoidable consequence in the provision of a fair and reasonable communications policy but it cannot be the central issue. The duty of telecommunications companies and government is to serve the public first. It may be in those interests that, years from now, much of the existing regulation will be dropped or at least waived with the advent of lower cost telecommunications and an industry that is competitive in all its aspects.

The Canadian reaction to a new world in telecommunications is well underway. The instillment of competition in its long distance market is one of the last remaining steps. Whether the allowances for competitive long distance will be tolerant of new businesses or so restrictive as to exclude all possible competitors but the most favored, has not been established. It will be incumbent on the federal government to establish the guidelines for this introduction. However, before proceeding, the federal and provincial conflict for authority in the telecommunications sector must be settled. If necessary, the present regulatory bodies must be modified to provide even representation and jurisdiction. □